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MEMORANDUM

To: Docket RME - R08-OAR-2004-CO-0003 Carbon Monoxide Maintenance Plan Revision for the Longmont Attainment Area

From: Tim Russ, EPA, Region 8, Air Program Tim Russ 10/18/04

Subject: Corrections of Typographical Errors on Pages 5 and 6 of the Technical Support Document (TSD) for the Longmont Revised CO Maintenance Plan

EPA recently found two minor typographical errors in the State's TSD for the Longmont revised carbon monoxide maintenance plan. These errors are described as follows:

A. TSD page 5, Table 1 entitled "Longmont Carbon Monoxide Maintenance Plan Emission Inventories (tons/day)": The original TSD had 25.992 tons/day of CO as the Grand Total of emissions for the year 2015. This was the same figure as the "On-Road" mobile source emissions and was accidentally transposed to the Grand Total figure. The correct Grand Total figure for 2015 is 36.361 tons per day. We note that this error was only in the TSD as the revised maintenance plan did use the correct Grand Total of 36.36 tons per day for 2015.

B. TSD, page 6, paragraph two under 3.2 "Travel Demand Model based on Mobile6.2 Inputs": The TSD incorrectly referred to the PPACG (Pike's Peak Area Council of Governments) which is the metropolitan planning organization (MPO) for the Colorado Springs area. The correct MPO reference for the Longmont area is the Denver Regional Council of Governments (DRCOG).

2.0 Emission Inventories and Maintenance Demonstration

The emission inventories for the 1993 attainment year, the 2005, 2006 and 2010 interim years, and the 2015 maintenance year are presented in Tables 1. Each inventory accounts for the emission control programs effective during that period. As shown in these tables, emissions for all future years are less than emissions for the 1993 attainment year. Therefore, maintenance of the CO NAAQS is demonstrated.

Table 1 - Longmont Carbon Monoxide Maintenance Plan Emission Inventories (tons/day)

Source Category	1993	2005	2006	2010	2015
Aircraft	0.504	0.533	0.535	0.545	0.557
Heating	0.110	0.138	0.140	0.149	0.161
Commercial Heating	0.036	0.044	0.045	0.048	0.051
Commercial Non-road	2.503	3.638	3.732	4.110	4.538
Construction Non-road	0.625	0.579	0.575	0.560	0.540
Industrial Non-road	1.525	1.502	1.500	1.493	1.483
Com. Lawn & Garden	1.170	1.364	1.380	1.445	1.526
Res. Lawn & Garden	0.205	0.238	0.240	0.251	0.264
Agriculture Non-road	0.000	0.000	0.000	0.000	0.000
Wood Burning	2.537	1.737	1.670	1.403	1.070
Railroad Non-road	0.007	0.008	0.008	0.008	0.008
Railroad Locomotives	0.030	0.045	0.047	0.052	0.058
Point Sources	0.183	0.120	0.115	0.094	0.068
Sub-total non-road	**9.437**	**9.945**	**9.988**	**10.157**	**10.369**
On-Road	43.255	33.969	35.321	28.007	25.992
Grand Total (tons/day)	**52.692**	**43.914**	**45.309**	**38.164**	**36.361**

Note: Results are reported with two decimal place precision to provide representation of smaller source categories. This level of precision is not intended to suggest a level of accuracy. A detailed description of all point sources is shown in Table 4.

The area/non-road inventories provide emissions estimates for a weekday during the winter CO season (November through February). The maximum and minimum temperatures used for the Mobile6 input are consistent with those used in the redesignation request and maintenance plan. The modeling domain consists of the Longmont attainment/maintenance area, which encompasses the City of Longmont and the surrounding area. The inventories were developed using EPA-approved emissions modeling methods, including the MOBILE6.2 emissions model, and the latest transportation and demographic data from the Denver Regional Council of Governments (DRCOG). DRCOG is the "Metropolitan Planning Organization" for transportation in the Longmont area. This technical support document for this maintenance plan contains detailed information on model assumptions and parameters for each source category.

The Denver Regional Council of Governments has provided the demographic and vehicle miles traveled data for use in this technical analysis. Table 2 shows the 1993 – 2015 demographic data used for these inventories.

Table 2 – 1993 – 2015 Demographic Data

1993	2005	2006		2010	2015
Population	59,340	81,648	83,030	88,560	92,535
Employment	25,725	35,496	36,333	39,680	42,701
Households	22,912	31,116	31,701	34,040	35,518
Vehicle Miles Travel(	750,122	1,073,189	1,107,496	1,261,738	1,372,530

3.0 Mobile Source Emission Inventories

3.1 Vehicle Miles Traveled Activity Estimates

The Denver Regional Council of Government (DRCOG) travel demand modeling provides the base vehicle miles traveled for the mobile source emission inventories. The 2001, 2010 and 2020 networks from the 2025 Regional Transportation Plan (RTP, April 2002) were used to estimate the VMT for 2005, 2006, 2010 and 2015. The 1993 VMT was estimated using the last travel demand modeling DRCOG performed for 1993 (1993DA).

3.2 Travel Demand Model based Mobile6.2 Inputs

The following Mobile6.2 inputs parameters for 1993, 2005, 2006, 2010 and 2015 were derived from the VMT and vehicle speeds resulting from DRCOG travel demand modeling:

- Vehicle speeds (SPEED VMT command)
- Diurnal distribution of VMT (VMT BY HOUR command)
- Distribution of VMT by Facility class (VMT BY FACILITY command)

A FORTRAN program was written to convert the speeds and VMT, as a function of AM, PM and Off peak periods, facility type and area type, into the proper formats for the Mobile6.2 command files. This FORTRAN program, m6inputa.f, is included in the Appendix, available upon request. The diurnal distribution of VMT for each area type is normalized to unity, resulting in the files referenced by the VMT BY HOUR command. The Mobile6.2 default VMT BY HOUR distribution was used to distribute the AM, PM and OFF Peak period VMT from the DRCOG travel demand modeling into 24 hours. This 24-hour distribution of VMT was than normalized to unity. The SPEED VMT files are processed in a similar manner. The freeway and expressway speeds are VMT weighted for the 'freeway' speeds in the SPEED VMT files. The principal arterial, minor arterial and collector speeds are VMT weighted for the 'arterial' speeds in the SPEED VMT files. The file referenced by the VMT BY FACILITY command results from a summary of VMT by facility type for each area type.

Finally, the FORTRAN processing program writes a text file of five scenarios, one for each area type. The text for each scenario references the appropriate files through the SPEED VMT, VMT BY FACILITY and VMT BY HOUR commands. The scenarios text is then appended to the 'header' and 'run' sections to complete the Mobile6.2 input file.